Repair instructions

PRAKTICA BC 1/B 200

Identification no. 961 193

Contents

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1. General

- Repair instructions correct to February 1983
- Knowledge of the operating instructions is assumed
- Positional references in these repair instructions such as front, left, top etc are based on the following camera position:

  Camera standing on a flat surface. The back or film track facing the repairer.

- All bright and black parts, assemblies and components should be washed before assembly in pure benzine and then in a 20:1 benzine/oil mixture.

Lubricants

Designation	Technical requirements and properties	Symbol
Grease 208	Lubricating grease, suitable for rolling bearings maximum temperature for use 100 °C minimum temperature for use -20 °C worked penetration 20.5 to 17.5 mm waterproof to 50 °C oil separation at 50 °C max 15 % dropping point min 150 °C	
Grease 209	As for grease 208 but with addition of 5 % molybdenum disulphide	
Grease 228	Aluminium-base waterproof instrument grease with a worked penetration of 34 to 31 mm and a temperature range for use of -25 °C to 60 °C	
Grease 233	Aluminium-base waterproof instrument grease with a worked penetration of 29.5 to 26.5 mm and a temperature range for use of -25 °C to 60 °C; addition of 5 % molybdenum disulphide	
Oil 124	Greased, very low temperature proof special oil for fine mechanical instruments viscosity at 20 °C: 20 to 40 mm^2/s (c St) setting point max -55 °C	

Designation	Technical requirements and properties	Symbol
	free of water-soluble acids and bases, water content max 0.1 % saponification number mg KOH/g min 4	

- Locking washers should be so assembled that the burrless side is against the functional part.
- Parts retained by varnish should be loosened for disassembly with thinner or butyl acetate. After assembly the parts should once again be retained with varnish.
- Soldering time for all joints is around 2 seconds. Soldering temperature is around 250 °C.
- The exploded diagrams show the camera divided into its main assemblies, subassemblies and individual parts. Item numbering is according to order of disassembly.
- All parts and groups marked E, and TGL and DKS standard screws, washers and nuts have priority availability from Pentacon as stock spare parts. All unmarked spare parts are only obtainable in exceptional cases with lengthy delivery times.
- The circuit components list, circuit diagram and logic diagram are used for circuit level testing and as an aid to comprehension of the functioning of the camera.
- If an item is shown on several figures it retains the same order code.
- Assemblies and parts are shown in the text according to the following key.

Example:

figure 3.0/6
figure no/item no

- In explanations relating to item numbers of the facing figure, the figure no is not indicated.
- Figure numbers should be interpreted as follows:

Example: figure 3.1.1.1.

figure 3.	1.	1.	1.
chapter no in contents	main assembly compare figure 3.0.	group shown comes from figure 3.1.	second subgroup from figure 3.1.

- Repair instructions for PRAKTICA B 200

This repair documentation also applies to the PRAKTICA B 200 camera.

These instructions incorporate all changes made to the B 200.

The previous repair instructions for the B 200 become invalid with the issue of these instructions.

The following list covers all parts and groups which are specific to one camera and consequently cannot be interchanged:

Designation	BC 1	B 200	Figure/ item
shutter release assembly	961 185 9 0223	961 185 9 0040	3.0/14
pin	961 185 1 0840	961 185 1 0198	3.2/3
switch assembly	961 185 9 1020	961 185 9 0020	3.2/6
locking disc	961 185 1 0815	961 185 1 0039	3.2/7
spring, riveted group	961 185 9 02144	961 185 9 0099	3.2/8
holder assembly	961 185 9 1044	961 185 9 0044	3.2/13
contact, injection moulded group	961 185 9 0242	961 185 9 0057	3.2/10
cover assembly	961 185 9 1010	961 185 9 0010	3.0/22
spring	961 185 1 1393	961 185 1 0393	3.0/7
hot shoe	961 185 1 1013	961 185 1 0013	3.0/11
intermediate piece assembly	961 185 9 1015	961 185 9 0015	3.2/20

Designation	BC 1	B 200	Figure/item
COVER, complete	961 185 9 1018	961 185 9 0229	3.1/ 7
frame assembly	961 185 9 1041	961 185 9 0041	3.3/10
mirror box assembly	961 185 9 1043	961 185 9 0043	3.3/14
case assembly	961 185 9 1095	961 185 9 0095	3.4/12
back assembly	961 185 9 1096	961 185 9 0096	3.5/21
shim	961 185 1 1461	961 185 1 0461	3.0/ 8
pin	961 185 1 0678 961 185 1 0679 961 185 1 0680	961 185 1 0120	3.0/24
flat head screw	-	2xBM 1,6x3 TGL 5683	3.5/ 1
flat head screw	-	2xBM 1,6 x 5 TGL 5683	3.5/ 2
triped nut	-	961 185 9 0125	3.5/ 3

As the exposure system of the PRAKTICA B 200 (961 185 9 0131) is no longer available from PENTACON, it is necessary in the event of repair to install the BC 1 circuit board (961 185 9 1070). This requires, in addition to the replacement of the circuit board, to replace the B 200 parts and groups listed in the following table with parts and groups of the BC 1

Designation	Part no B 200	Part no BC 1	Figure/item
shutter release assembly	961 185 9 0040	961 185 9 0223	3.0/14
engaging disc, riveted group	961 185 9 0039 transfer to slot 1	961 185 9 0039	3.0/15
pin	961 185 1 0198	961 185 1 0840	3.2/ 3
washer	961 185 1 0030 new part	961 185 1 0030	3.2/ 5
switch assembly	961 185 9 0020	961 185 9 1020	3.2/ 6
locking disc	961 185 1 0039	961 185 1 0815	3.2/ 7
spring, riveted group	961 185 9 0099	961 185 9 0214	3.2/ 8
holder assembly	961 185 9 0044	961 185 9 1044	3.2/13
spring	961 185 1 0821	961 185 1 0821	3.2/14
contact, injection moulded group	961 185 9 0057	961 185 9 0242	3.2/10

The respective quantities of the parts and groups listed above are identical.

- For the PRAKTICA BC 1 the following types of cable are required:

stranded hook-up wire Liy 1 x 0.08 mm^2	TGL 21806	black yellow blue
connecting wire 7Y 1 x 0.3	TGL 21806	green brown yellow blue
stranded hook-up wire Liy 1 x 0.02 mm^2	TGL 21806	blue

The cable types listed can be obtained through our customer service by the metre.

Repair set-up

For the repair of the Praktica BC 1 it is necessary to secure the repair workplace against electrostatic and electromagnetic fields. For measuring and other work an electrically conductive and earthed base is needed. The repair personnel must be safeguarded against electrostatic charging by earthing. All items coming into contact with the opened camera should also be earthed. Recommended as a workplace is the Mos-Saver service facility of Technology in Production, West Berlin. There is a particular hazard to the exposure system when it is outside the camera. It should be stored only in its transport packaging and unpacked at the workplace immediately before assembly. Removed exposure systems may be wrapped in metal foil to protect them against electromagnetic and electrostatic fields. All measuring instruments and tools should be connected to the workplace's earth connection point.

2. List of tools

- for the workplace
- for the repair workshop

The tools required for the PRAKTICA BC 1 are identical to those needed for PRAKTICA B 100 and B 200.
For sketches see the repair instruktions for the PRAKTICA B 100.

2.1. Special tools for workplace

Order no	Designation	Use
961 185 9 0095 M 1	conical aid	assembly, cocking mechanism
961 185 9 0095 M 4	special screwdriver	cocking mechanism, pin adjustment
961 185 9 0000 M 9	adjusting spanner	shutter speed E 1
961 185 9 0000 M 10	adjusting spanner	shutter speed E 2
961 185 9 0000 M 11	adjusting spanner	release bars, 1/1000 s
961 185 9 0000 M 13	screwdriver	optical adjustment
961 185 9 0000 M 14	screwdriver	optical adjustment
961 185 9 0000 M 15	screwdriver	mirror adjustment
961 185 9 0000 M 16	spanner for slotted nut	cocking lever
961 185 9 0000 M 20	spanner for slotted nut	DIN locking button
961 185 9 0000 M 22	special screwdriver	exponential voltage divider (pin)
961 185 9 0000 M 23	spanner for slotted nut	self-timer
961 185 9 0000 M 27	special screwdriver	bottom plate - optical adjustment
M 199	spanner	flash socket

2.2. Gauges and test instruments for repair workshop

Order no	Designation and use
961 185 9 0000 LL 4 & 1-3 & EL 2 & /3	gauge for flange focal length
961 185 9 0000 L 10	holder for optical adjustment
961 185 9 0000 L 11	supporter for optical adjustment

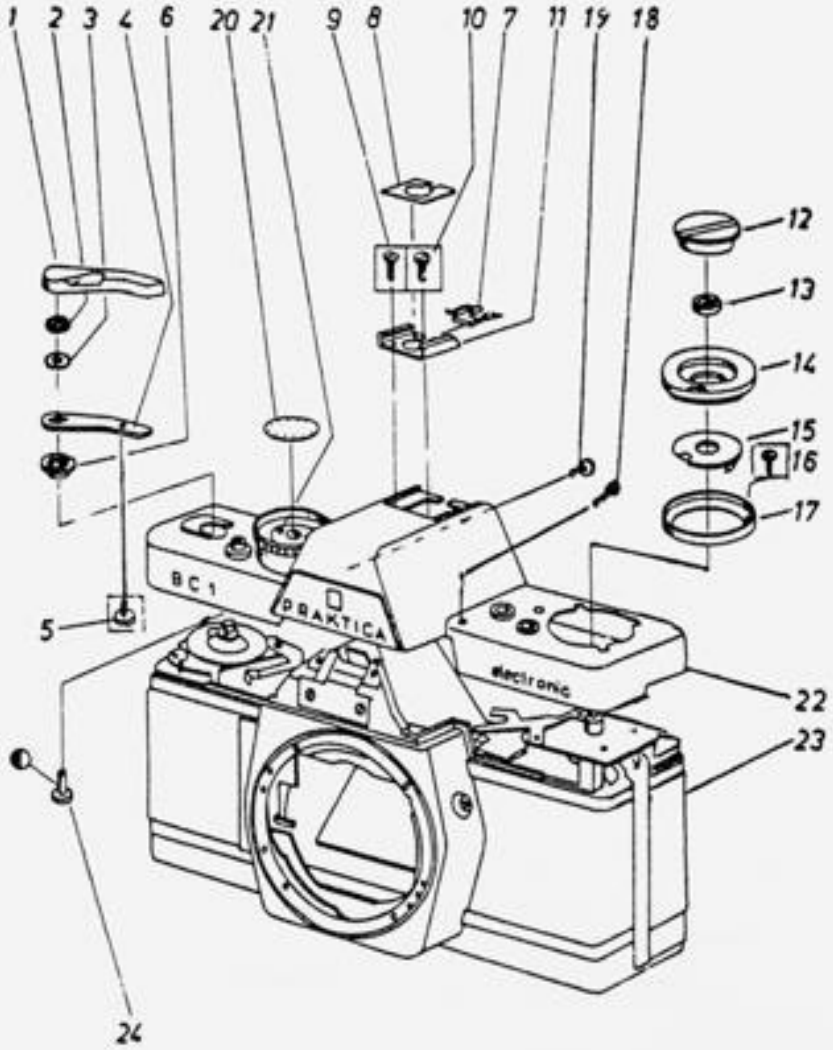
autocollimator f = 400 mm

measuring set-up: Kyoritsu electric type EP 500
digital multimeter (range 0.2-6 V)
dc controller (range 1.5-6 V)
oscillograph
framing eyepiece — identification no 208 402
angle finder — identification no 207 190

3. - Exploded drawings

- List of spare parts

- Assembly and adjustment instructions



PRAKTICA BC 1 Bild 3.0.

Camera - disassembly

Figure 3.0. Disassembly - roof

Item	Designation	Pcs	Code	Availability	Remarks
1	lever handle	1	961 185 1 0626	E	
2	nut	1	961 185 1 0563	E	
3	tooth lock washer	1	A 3 TGL 0-6797		
4	cocking lever	1	961 185 1 0624	E	
5	screw	1	961 185 1 0677	E	connects lever with handle
6	slotted nut	1	961 185 1 0310	E	
7	spring	1	961 185 1 1393	E	connects roof and casing
8	shim	1	961 185 1 1461	E	
9	flat head screw	2	961 185 1 0457	E	
10	flat head screw	2	961 185 1 0015	E	
11	hot shoe	1	961 185 1 1013	E	
12	rewind button	1	961 185 002217-6.00	E	
13	nut	1	961 185 1 0191	E	
14	button assembly	1	961 185 9 0223	E	complete group figure 3.0.1.
15	engaging disc, riveted group	1	961 185 9 0039	E	
16	screw	3	961 185 1 0199	E	
17	ring	1	961 185 1 0200	E	
18	screw	2	961 185 1 0443	E	
19	screw	2	961 185 1 0444	E	
20	speed disc	1	961 185 1 0428	E	
21	screw	2	BM 1.6 x 3 DKS 2010		
22	roof assembly	1	961 185 1 1010	E	see figure 3.0.1.
23	camera assembly	1	961 193 9 0000		see figs 3.1. 3.2. 3.3. 3.4. 3.5.
24	pin	1 or or	961 185 1 0678 961 185 1 0679 961 185 1 0680	E E E	

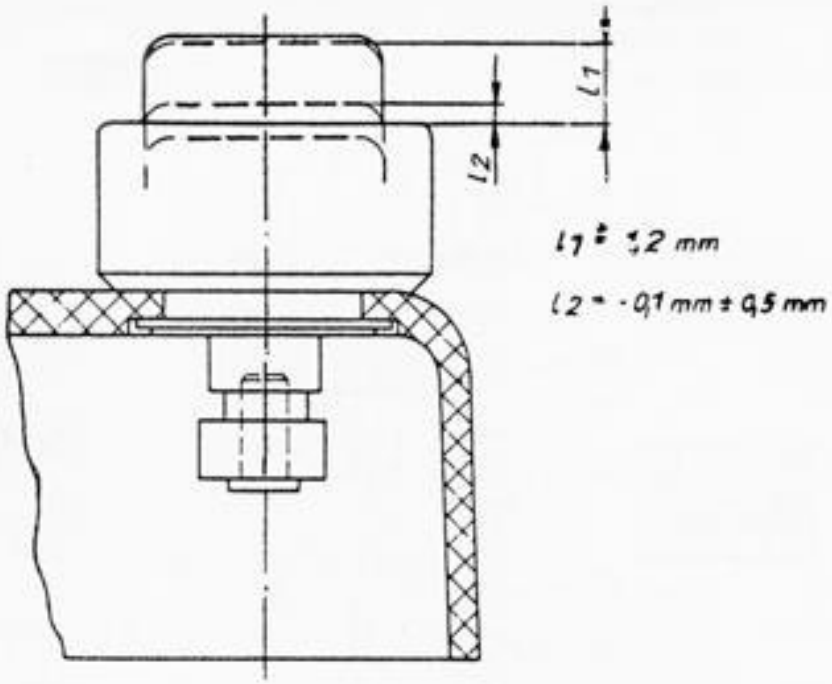


Bild 3.0.0.1

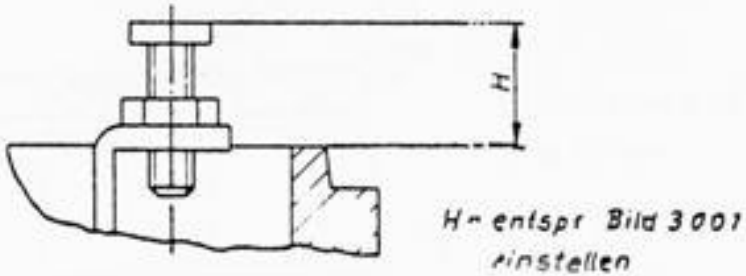


Bild 3.0.0.2

Assembly notes for fig. 3.0

Item	Description	Tools
20	Glue on speed disc in line with speed lock-in position	
21	Loosen fastening screws, turn shutter speed button according to position of switching drum and align with centre of the drum.	
14	Place onto button assembly:	
15	Engaging disc, riveted group,	spanner for slotted nut 961 185 9 0000 M 20
23	Insert in camera, lock and screw in.	

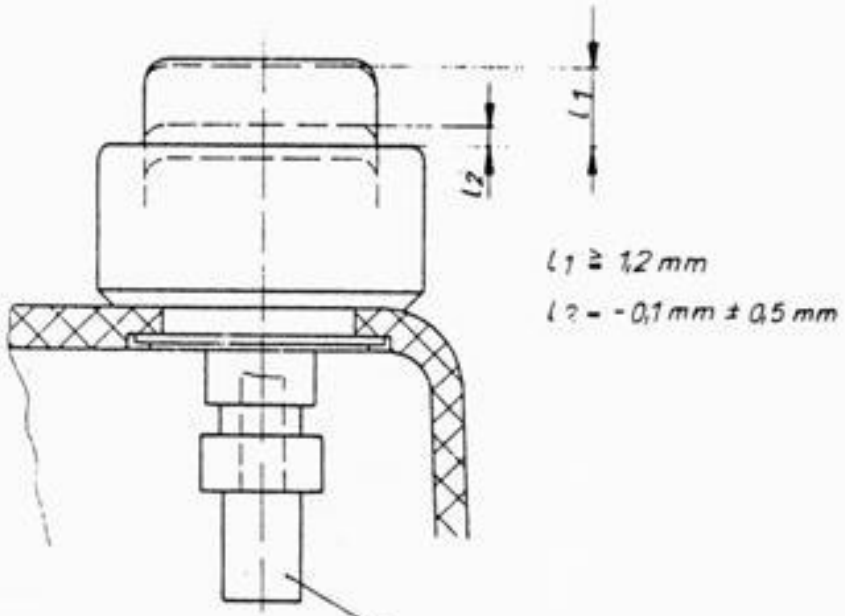
Adjustement notes for fig. 3.0

3.0.1./12 Shutter release path: upper edge of lock to upper edge of button

- Path L_1 (see Fig. 3.0.0.1 and 3.0.0.3.) switches on the electronics to the point of release. — caliper gauge
- Path L_2 releases the shutter (see Fig. 3.0.0.1).
- Adjust and counter release bars accordingly (see Fig. 3.0.0.2) See Fig. 3.0.0.3 for the adjustment of the BC 1 camera release.
- Path L_2 releases the shutter (see Fig. 3.0.0.3) — caliper gauge
- Insert the bolt, Fig. 3.0/24, in accordance with dimension "b" (distance between lower plate and counter release lever) in Fig. 3.0.0.4. The release bar is in rest position. — feeler gauge

Functional check (for BC 1 and B 200)

- When shutter release is locked there is no contact by switch S 1/1
- Contact above release point
- Release occurs when upper edge of lock is flush with upper edge of shutter release (fig. 3.0.1/12).



$l_1 \geq 1{,}2$ mm

$l_2 = -0{,}1$ mm $\pm$ 0,5 mm

Bild 3.0.03

Bolzen	b
10678	0-0,5
10679	>0,5-1
10680	>1-1,5

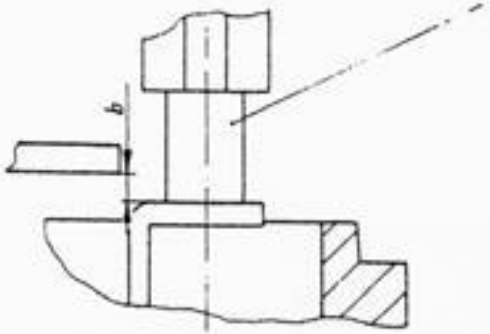
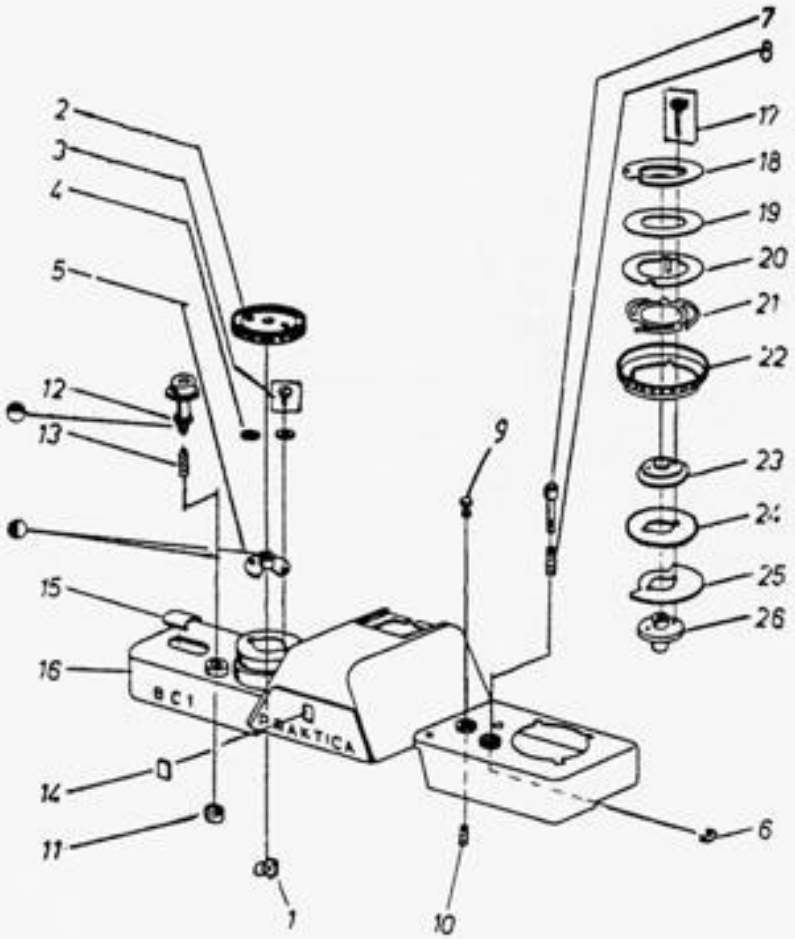


Bild 3.0.04

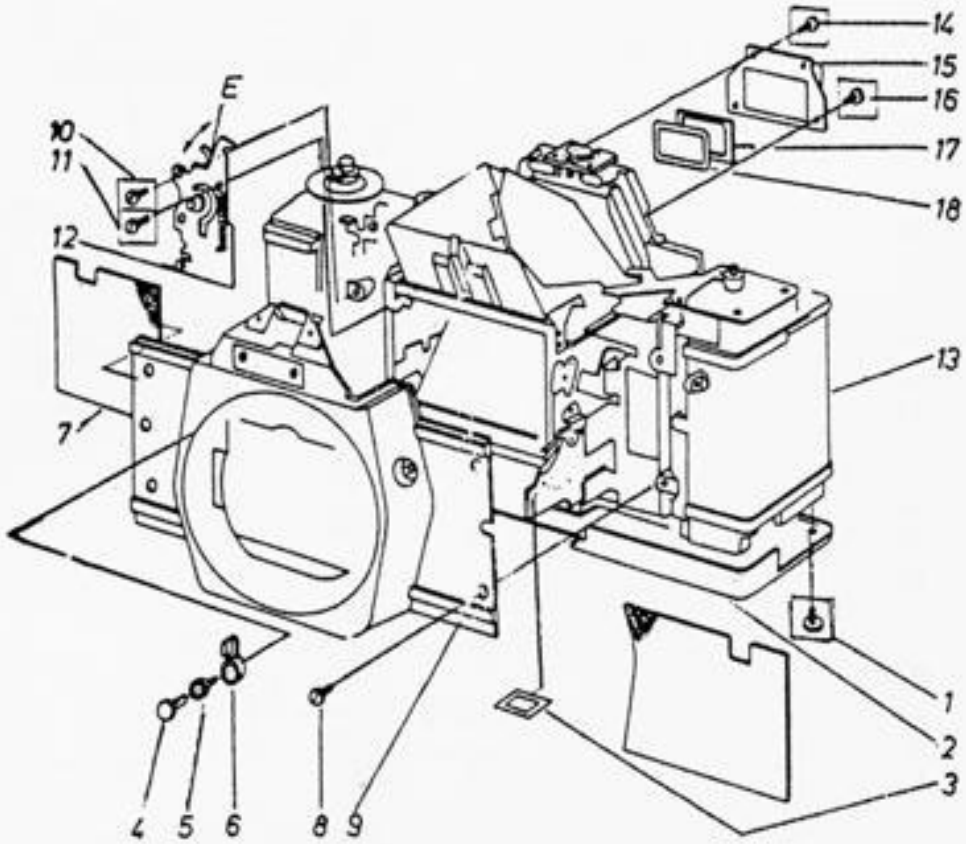
Bolzen nach Maß „b" entspr. Bild 3.0.3 einsetzen.



PRAKTICA BC 1 Bild 3.0.1.

Fig 3.0.1. Disassembly - roof assembly, button assembly

Item	Designation	Pcs	Code	Availability	Remarks
1	catch	1	961 185 1 0808		turn roof 180°
2	button	1	961 185 1 0629		
3	flat head screw	2	BM 1.6 x 3 DKS 2010		
4	washer	2	1.6 x 5 x 0.3 DKS 2001		
5	bush	1	961 185 1 0628		
6	retaining washer	1	1.2 TGL 0-6799		
7	pin	1	961 185 1 0040	E	
8	pressure spring	1	0.11 x 1.9 x 5.5 TGL 18 394		
9	key	1	961 185 1 0534	E	
10	pressure spring	1	961 185 1 0594	E	
11	nut	1	961 185 1 0118	E	
12	button	1	961 185 1 0115	E	
13	pressure spring	1	0.32 x 5.5 x 5.5 TGL 18 394		
14	window	1	961 185 1 0131	E	
15	viewing window	1	961 185 1 0057	E	
16	roof, riveted group	1	961 185 9 1011		
17	screw	2	961 185 1 0433		
18	ring	1	961 185 1 0838		
19	washer	1	961 185 1 0837		
20	catch	1	961 185 1 0194		
21	leaf spring	1	961 185 1 0193		
22	knurled ring	1	961 185 1 0192		
23	ring	1	961 185 1 0190		
24	tooth lock washer	1	961 185 1 0189		
25	stop	1	961 185 1 0188		
26	flange	1	961 185 1 0187		



PRAKTICA BC1 Bild 3.1.

Fig 3.1. Disassembly - camera assembly

Item	Designation	Pcs	Code	Availability	Remarks
1	screw	4	961 185 1 0443	E	
2	base	1	961 185 9 0115	E	grease rewind button with grease 208
3	shim	1	961 185 1 0598	E	
4	button	1	961 185 1 0515	E	
5	nut	1	961 185 1 0514	E	
6	lever	1	961 185 1 0418	E	
7	cover, finished part	1	961 185 9 1018	E	
8	flat head screw	1	BM 2 x 5 TGL 5683-5.8		
9	bearer assembly	1	961 185 9 0012	E	
10	screw	2	961 185 1 0032		
11	screw	2	BM 1.4 x 3		
12	self-timer assembly	1	961 185 9 0027	E	
13	camera assembly	1	961 193 9 0000		
14	flat head screw	2	BM 1.6 x 4 TGL 5683 5.8		
15	holder, glued group	1	961 185 9 0112	E	
16	screw	2	961 185 1 0185		
17	light occluder	1	961 185 1 0588	E	
18	frame	1	961 185 1 0599	E	

Assembly notes for fig 3.1.

Item	Description	Tool
4	Glued on with adhesive 402	
5	Loosen nut with spanner	961 185 9 0000 M 23
12	Assembly of self-timer - wind up self-timer halfway - hold cocking lever and tighten slotted nut under counterpressure - adjust point of release at E (see fig 3.1.) running time = 8 to 10 s	
9	Adjust aperture reflection - with mask (see fig 3.1.1/2) - adjust aperture reflection window parallel to image field and near to the bridge (fig 3.1.0.1.) - with mirror (see fig 3.1.1/3) - adjust aperture marking to middle of window. Adjust with customer's lens - check adjustment subsequently with roof on and correct if necessary (see fig 3.0.) - note refractive index of window from fig 3.0.1/14	

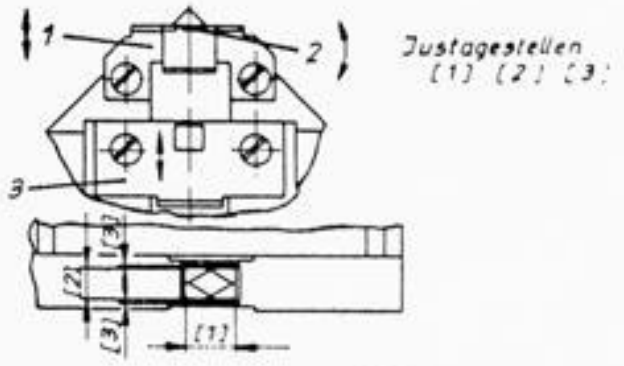
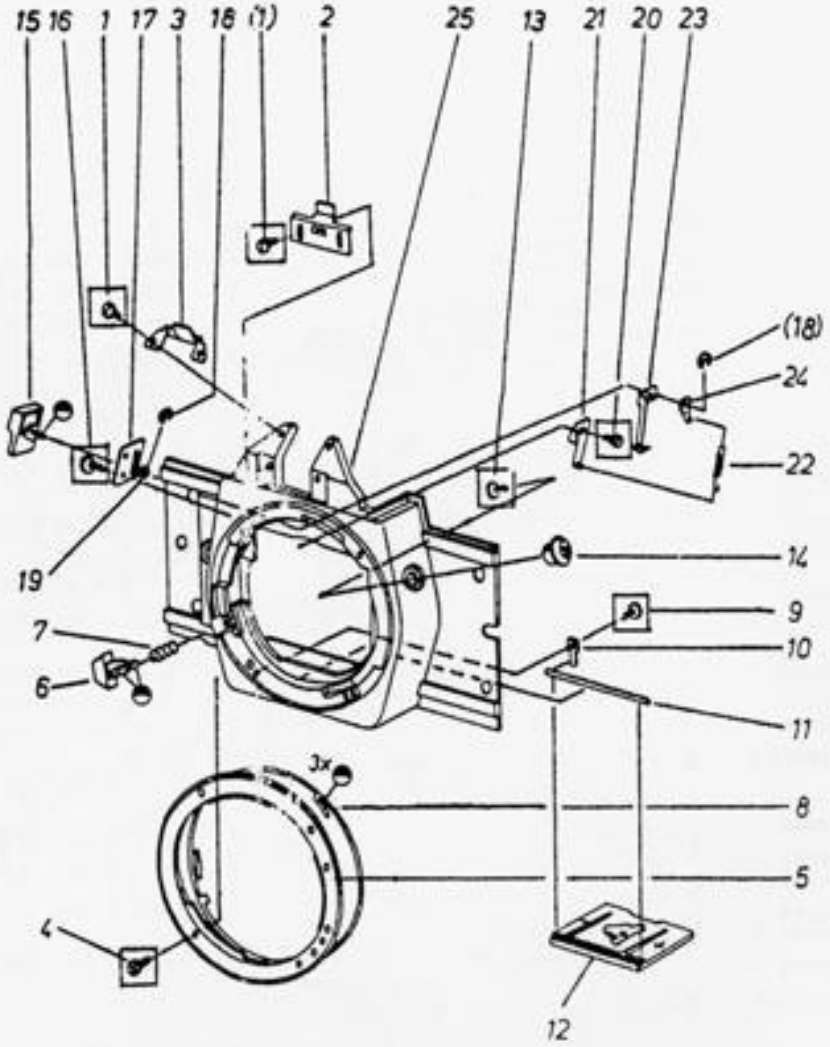


Bild 3.10.1



PRAKTICA BC 1 Bild 3.1.1.

Fig 3.1.1. Disassembly - bearer assembly

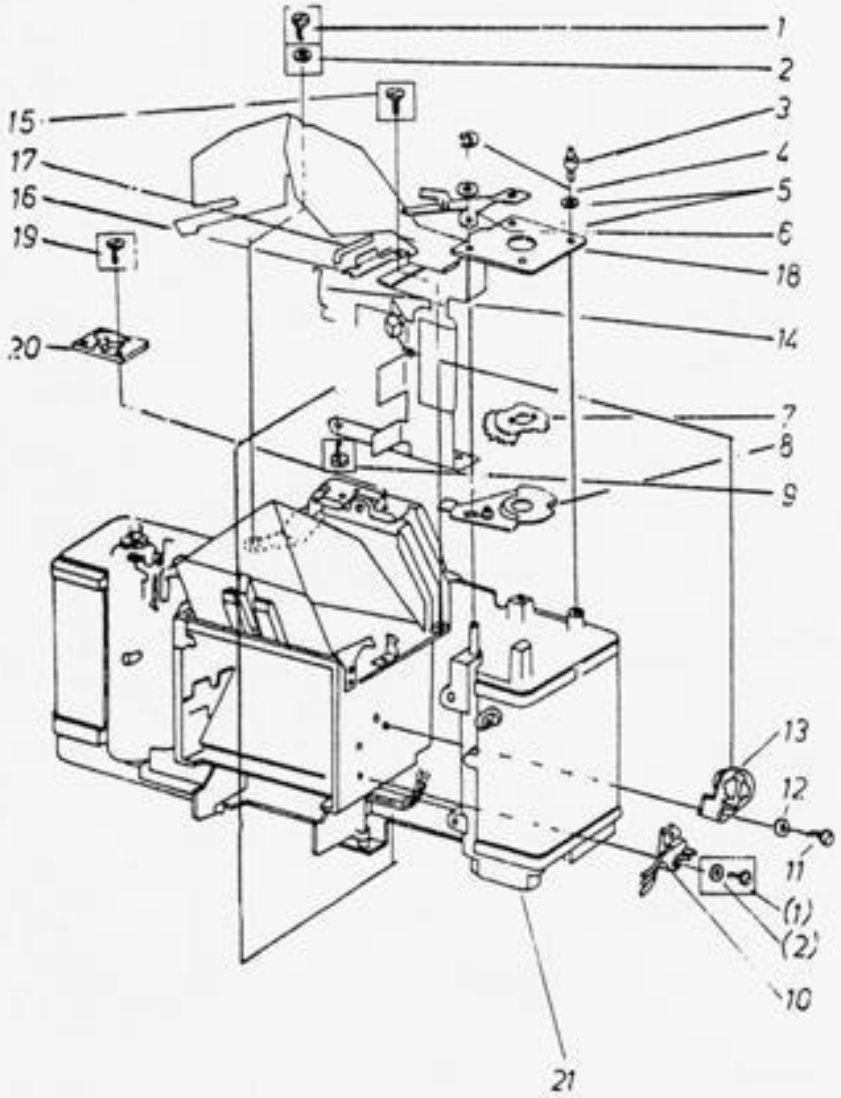
Item	Designation	Pcs	Code	Availability	Remarks
1	flat head screw	4	BM 1.6 x 2.5 DKS 2010		
2	mask	1	961 185 1 0130	E	
3	mirror, glued group	1	961 185 9 0026	F	
4	Phillips screw 1F	4	961 185 1 0442	E	
5	bayonet ring	1	961 185 9 0140	[illegible]	
6	key, riveted group	1	961 185 9 0016	E	
7	pressure spring	1	0.25 x 2.8 x 6.5 TGL 18 399		
8	spring washer	1	961 185 1 0008	E	
9	flat head screw	2	BM 1.4 x 3 DKS 2010		
10	supporting ring	2	961 185 1 0143		
11	shaft	1	961 185 1 0558		
12	cover, riveted group	1	961 185 9 0021	E	
13	screw	1	BM 1 x 2 TGL 0-84		
14	flash contact, riveted group	1	961 185 9 0022	E	
15	key, welded group	1	961 185 9 0023	E	
16	screw	2	AM 1.6 x 3 DKS 2010		
17	plate	1	961 185 1 0354		
18	retaining washer	2	1.2 TGL 0-6799		
19	washer	1	1.6 x 3 x 0.05 DKS 2001		if needed
	washer	1	1.6 x 3 x 0.1 DKS 2001		if needed
20	flat head screw	1	AM 1.6 x 2 DKS 2010		
21	angled plate	1	961 185 1 0352		
22	tension spring	1	0.12 x 1.3 x 40 A1 TGL 18 396		
23	key, welded group	1	961 185 9 0024		
24	angled plate	1	961 185 1 0352		
25	bearer	1	961 185 9 0013		

Assembly notes for fig 3.1.1.

Item	Description	Tool
12	Battery cover snaps onto shaft (item 11)	
4	Phillips screw	
14	screwed into flash contact	M 199

Test notes for fig 3.1.1.

5	positioning of lens holder (item 5) in relation to	
15	contact surfaces between bearer (item 15) and case (fig 3.1/13)	961 185 9 0000 LL 4 and E1 3
	parallel deviation 0.01 mm	
	dimension 19.84 ± 0.03 mm	
	the above measurements should be checked or reestablished on the bearer after disassembly	



PRAKTICA BC 1 Bild 3.2.

Figure 3.2. Disassembly - circuit board from case

Item	Designation	Pos	Code	Availability	Remarks
1	screw	2	BM 1.6 x 4 DKS 2010		
2	washer	2	1.6 x 4 x 0.3 DKS 2001		
3	pin	3	961 185 1 0840	E	
4	retaining disc	1	1.5 TGL 67.99		
5	washer	2	961 164 1 0030	E	
6	switch assembly S 2/2	1	961 185 9 1020	E	
7	locking disc	1	961 185 1 0815		
8	spring, riveted group	1	961 185 9 0214	E	
9	screw	2	BM 1.6 x 3 TGL 0.84		
10	contact, injection moulded group	1	961 185 9 0242	E	
11	screw	1	BM 1.6 x 2.5		
12	washer	1	1,6 x 4 x 0,3 DKS 2001		
13	holder	1	961 185 9 1044		
14	spring	1	961 185 1 0821	E	
15	screw	1	BM 1.6 x 5 TGL 0-84		
16	bridge	1	961 185 1 1386	E	
17	shim	1	961 185 1 1609		
18	circuit board assembly	1	961 185 9 1070	E	
		or	961 185 9 1170	E	
19	screw	1	BM 1.6 x 3 TGL 0-84		
20	intermediate piece	1	961 185 9 1015	E	
21	camera assembly	1	961 193 9 0000		
22	diode, soldered group	1	961 185 9 1064	E	not shown

Assembly notes for fig 3.2.

Item	Description	Tools
	When assembling the circuit board the prescribed order must be followed:	
	- carefully bend exposure system circuit board as shown in fig 3.2.1.	
	- insert display with bridge (fig 3.2/16) in angle plate (fig 3.3.1/26) and secure	
	- insert photodetector in holder (fig 3.2/13) and secure with spring (fig 3.2/14); insert in mirror box (fig 3.3.1.)	
	- insert contact (fig 3.2/10) in drilled hole; align and screw on circuit board (fig 3.2/(1) and (2))	
	- push circuit board under holding tabs on prism; screw code switch onto angled plate (fig 3.3/4)	
	- turn camera upside down, wrap circuit board around cast ridge and screw to case (fig 3.2/9)	
	- place spring (fig 3.2/8) on rewind socket and hang in pin (fig 3.5/45); place locking disc (fig 3.2/7) on spring in middle position and secure with 2 pins (fig 3.2/3)	961 185 9 0000 M 22
	- place memory switch (S 2/2) (fig 3.2/6) on DIN divider (fig 3.2/18) and secure with item 3.2/3. Push on retaining washer (item 3.2/4)	

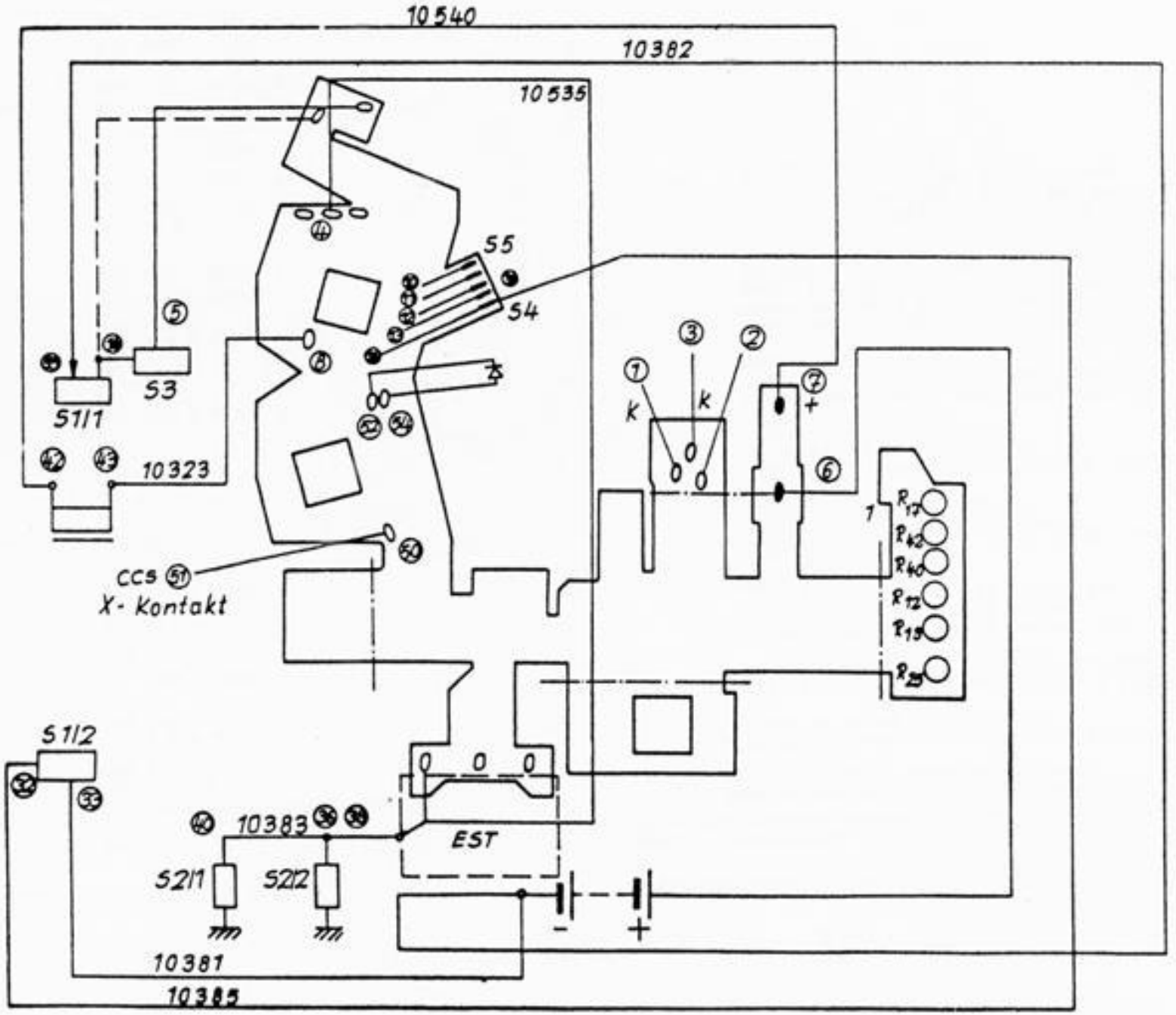

10540
10382
10535
S5
S4
S3
S111
10323
CCS 51
X- Kontakt
S112
10383
EST
S211
S212
10381
10385
Biegestellen

Bild 3.2.1

Assembly notes for fig 3.2.1.

Item	Description	Tool
	Solder circuit board as follows:	
	- put switches S 1/1 and S 3 on circuit board, fold 180° and solder on	
	- solder on cables as in fig 3.2.1 (soldering time approx 2 s)	
	- cable 10 323 point 8 on board cable 10535 tube 10 559 cable 10 383 S 2/2, point 36/38	
	- cable 10 535 point 4 on board	
	- cable 10 385 code switch point 31	
	- cable 10 540 point 7	
	- cable 10 382 S 1/1 point 35	
	- S 1 and S 3 points 5 and 14	
	- cable 11 078 point 52 - cable 11 079 point 54 } of diode, soldered group, 961 185 9 1064	
	- cable 11 074 point 30	

Adjustment notes for fig 3.2.1.

Item	Description	Tools
	- Adjust code switch to height of switch drum; loosen screw (3.3/1) and adjust correspondingly on angled plate (3.3/4)	
	- Loosen retaining screw from code switch (3.2/1) and adjust 0.15 mm at contact gap in accordance with fig 3.2.2.	
	- The circuit board should be checked for cold soldering joints and re-soldered if necessary	
	- The components on the circu' board need not be changed, as the board is assembled preadjusted	

Adjustment notes for fig 3.2.2.

- The contact spring must lie parallel to the tappet surface at W

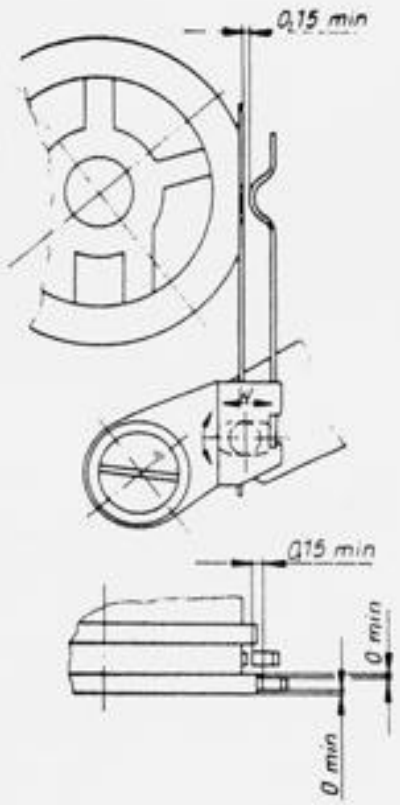


Bild 3.2.2

Code switch table					Setting
	(10)	(11)	(12)	(13)	
S 4	S 5/0	S 5/1	S 5/2	S 5/3	
L	o	o	o	L	1/1000
L	o	o	L	L	1/500
L	o	o	L	o	1/250
L	o	L	L	o	1/125
L	o	L	L	L	1/50
L	o	L	o	L	1/30
L	o	L	o	o	1/15
L	L	L	o	o	1/8
L	L	L	o	L	1/4
L	L	L	L	L	1/2
L	L	L	L	o	1
o	L	o	o	o	B
L	o	o	o	o	automatic
L	L	o	o	L	flash = 14 ± 1.5 ms

≙ L

≙ o

Adjustment notes for fig 3.2.1.

Item	Description	Tool
	Display adjustment:	
	- Loosen screws of bridge (3.3/16)	
	- Match the appropriate LED points with the scale and push right to the stop (camera adjustment with battery or other power source:	
	fixed speed 1 s and camera without lens	
	close switch S 1/1 (see fig 3.2.1.) via release rods)	
	Battery control:	
	- with shutter cocked and electronics switched on, press memory key (3.0.1/9)	
	LEDs go out at terminal voltage of 3.5 ± 0.1 V	

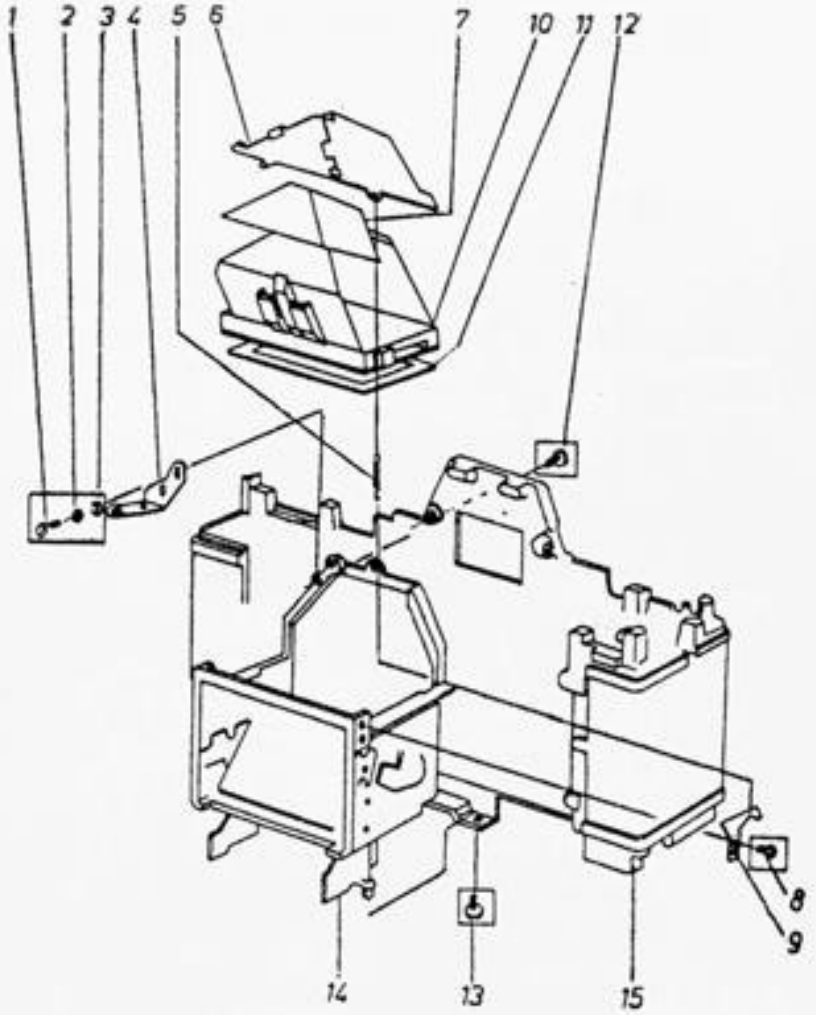


Fig 3.3. Disassembly - camera assembly, prism group and mirror box assembly

Item	Designation	Pcs	Code	Availability	Remarks
1	screw	1	BM 1.6 x 3 TGL 0-84		
2	washer	1	1.6 x 3 x 0.2 DKS 2001		
3	retaining washer	1	1.2 TGL 0-6799		
4	angled plate	1	961 185 1 0172		
5	tension spring	2	0.32 x 2.2 x 6 A 1 TGL 18 396		
6	bow piece	1	961 185 1 0124		
7	shim	1	961 185 1 0539		
8	screw	1	BM 1.6 x 2.5 DKS 2010		screwed on after assembly of prism
9	angled plate	1	961 185 1 1358		
10	frame assembly	1	961 185 9 1041	E	see fig. 3.3.2.
11	frame	1	961 185 1 0137		
12	screw	2	BM 1.6 x 8 TGL 0-84		
13	flat head screw	2	BM 1.6 x 5 TGL 5683		
14	mirror box assembly	1	961 185 9 1043	E	see fig 3.3.1.
15	camera assembly	1	961 193 9 0000		see fig 3.4.

Adjustment notes for fig 3.3.

Item	Description	Tools
- P -	Set angled plate, (3.3.0.7.) in given direction in accordance with M1, related to mirror contact points D and E according to fig 3.3.0.8. (mirror from H and swung up)	

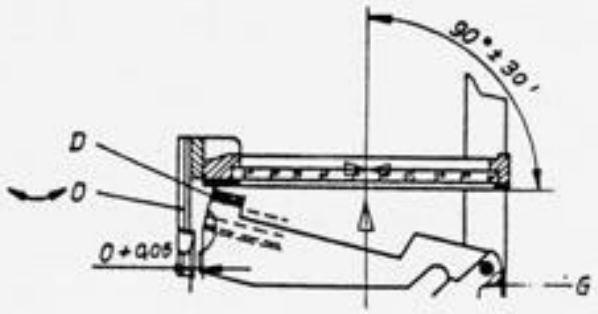


Bild 3.3.0.9

Adjustment notes for fig 3.3.

Item	Description	Tools
- O -	In mirror positions D and G (mirror swung up by hand) adjust measurement according to fig 3.3.0.9.	

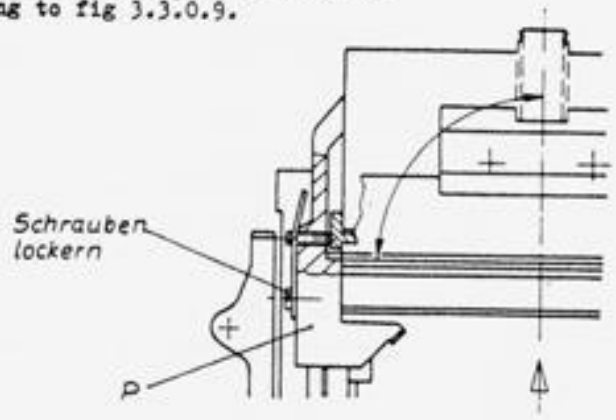


Bild 3.3.0.7

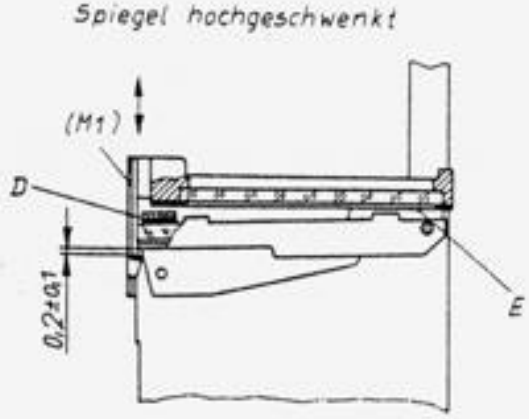
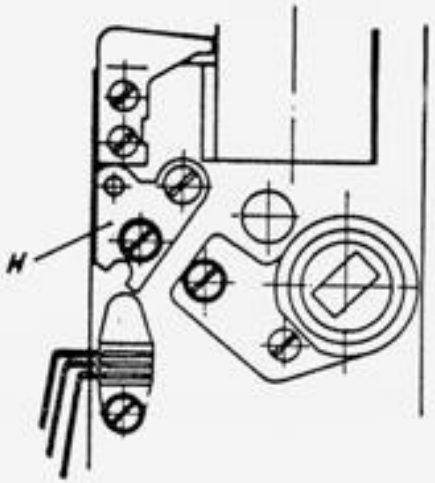


Bild 3.3.0.8

Optical adjustment

Item	Description	Tools
	Optical adjustment	
3.3.1/ 17 20	Cock camera and release E 1; loosen the screws needed for adjustment	961 185 9 0000 M 27
- H & G -	Adjustment of mirror base angle:	
	Insert plane mirror in place of frame assembly (3.3/10); screw on holder for optical adjustment	961 185 9 0000 L 10 961 185 9 0000 L 11
	Adjust angle position alternately at H and G (see figs 3.3.0.10 and 3.3.0.11.)	961 185 9 0000 M 13 961 185 9 0000 M 14
- J -	Adjustment of mirror position:	
	adjustment made with prism group mounted (fig 3.3.0.11); adjust mirror position at J	



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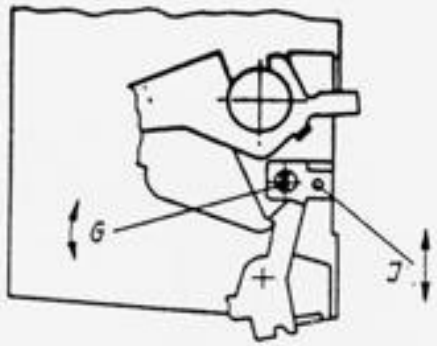
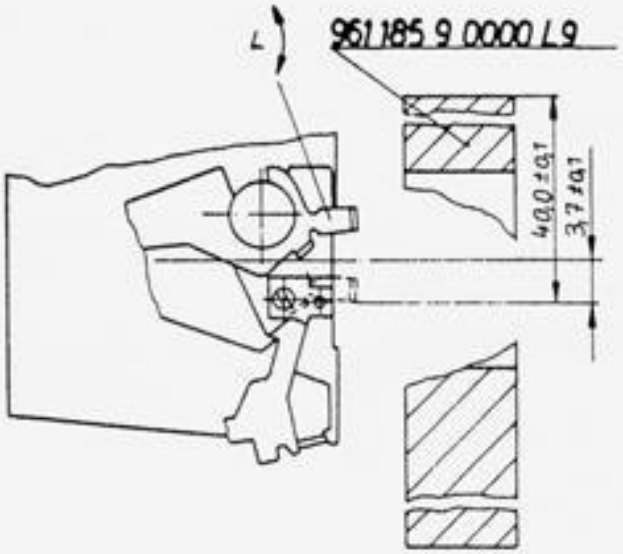


Bild 3.3.0.11

Adjustment notes for fig 3.3.

Item	Description	Tools
- L -	With camera cocked, set with caliper gauge measurement 40.0 ± 0.1 against gauge (see fig 3.3.0.12)	caliper gauge 961 185 9 0000 L 9



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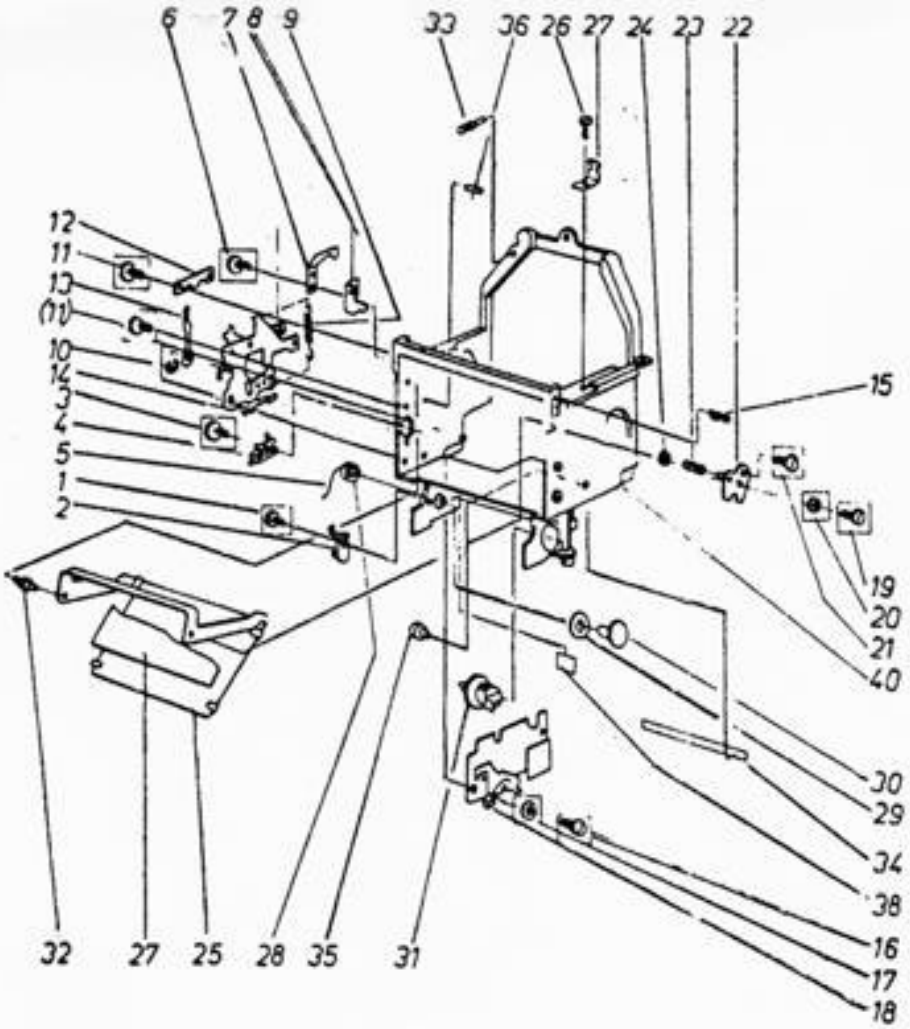

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Fig 3.3.1. Disassembly - mirror box

Item	Designation	Pcs	Code	Availability	Remarks
1	screw	1	BM 1.6 x 4 TGL 0-84		
2	contact, welded group	1	961 185 9 0045	E	switch S II
3	screw	1	97 01 11 00254		
4	contact, welded group	1	961 185 9 0050	E	switch S
5	cable, yellow	1	961 185 1 0382		
6	screw	2	961 185 1 0552		
7	angled plate	1	961 185 1 0359		
8	angled plate	1	961 185 1 0570	E	
9	tension spring	1	961 185 1 0419	E	
10	retaining disc	1	1.2 TGL 0-6799		
11	flat head screw	5	BM 1.6 x 2.5 DKS 2010		
12	bearing	1	961 185 1 0502		
13	slider	1	961 185 1 0503		
14	mirror gear assembly	1	961 185 9 0046	E	
15	threaded pin	1	M 1.6 x 3 TGL 0-553		
16	screw	2	961 185 1 0617		
17	washer	2	1.6 x 3 x 0.2 DKS 2001		
18	bottom plate assembly	1	961 185 9 0052	E	
19	cheese head screw	1	BM 1.6 x 2 TGL 0-84		
20	washer	1	1.8 TGL 17 774		
21	screw	1	961 185 1 0615		
22	bearing, riveted group	1	961 185 9 0121		
23	pressure spring	1	0.18 x 2 x 5.5 B TGL 18 394		

Adjustment notes for fig 3.3.1.

Item	Description	Tools
- R -	Adjustment at R related to cocked state and measurement a (fig 3.3.1.1.) The contact opening of switch S 1/2 (fig 3.3.1/4) must be at least 0.15	

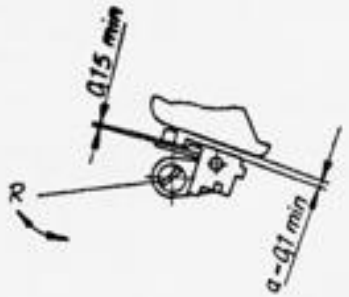


Bild 3.3.1.1

- S -	With lever in completely locked position the contact opening should be adjusted to 0.15 minimum Contact closure range b = at least 0.2 before breaking point (see fig 3.3.1.2.)	

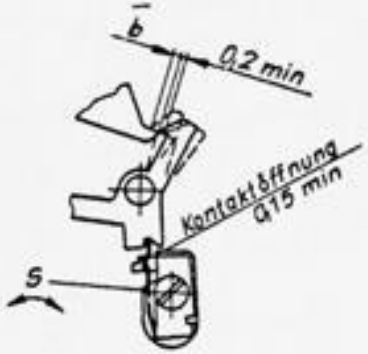


Bild 3.3.1.2

Item	Designation	Pcs	Code	Availability	Remarks
24	washer	1	1.2 x 3 x 0.1 DKS 2001		
25	mirror base, riveted group	1	961 185 9 0054	E	
26	flat head screw	1	AM 1.6 x 2.5 DKS 2010		
27	angled plate	1	961 185 1 0020		
28	washer	1	961 185 1 0365		
29	washer	1	961 185 1 0364		
30	rivet	1	961 185 1 0363		
31	battery contact	1	961 185 9 1138	E	
32	rivet	1	961 185 1 0348		
33	rivet	1	961 185 1 0435		
34	cover	1	961 185 1 0507		
35	rivet	1	961 185 1 0637		
36	straight pin	2	1 h9 x 3 TGL 0-7		
37	mirror	1	961 185 1 0494	E	
38	light occluder	1	961 185 1 0872		
39	shim	1	961 185 1 0387		
40	mirror box, finished part	1	961 185 9 0005		

Adjustment notes for fig 3.3.1.

Item	Description	Tools
- T -	Adjust by bending at T: force F 2 = 1.177 N ± 0.196 N (0.120 kg ± 0.020 kg) measured in direction of lever return just before bottom dead centre (see fig 3.3.1.3.)	

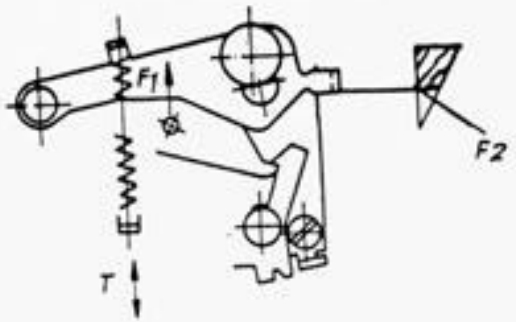


Bild 3.3.1.3

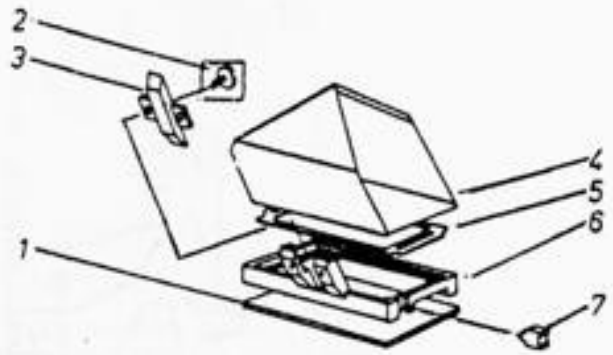
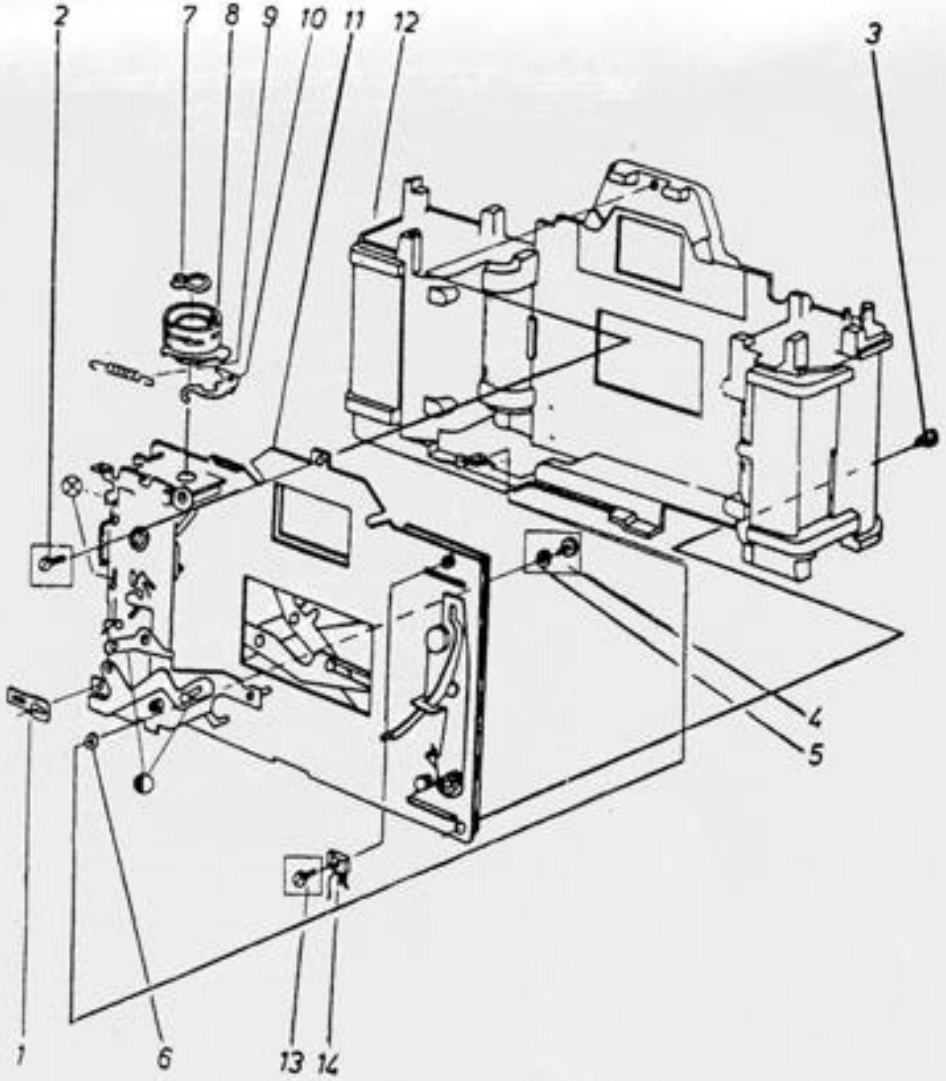


Fig 3.3.2. Disassembly - frame assembly

Item	Definition	Pcs	Code	Availability	Remarks
1	Fresnel lens	1	961 185 1 0133	E	
2	flat head screw	2	BM 1,6 x 3 DKS 2010		
3	prism	1	961 185 1 0127		
4	prism assembly	1	961 185 1 0042		
5	mask	1	961 185 1 1132		
6	frame, welded group	1	961 185 1 1138		
7	holder	1	961 185 1 1007		

Assembly notes for fig 3.3.2.

Push frame assembly to the front and to the right during assembly. Before assembly adjust mirror angle visually.



PRAKTICA BC 1 Bild 34.

Fig 3.4. Disassembly - camera assembly, shutter assembly

Item	Definition	Pcs	Code	Avail-ability	Remarks
1	strap retainer	1	961 185 1 0070	E	
2	screw	1	961 185 1 0825		
3	flat head screw	3	EM 1.4 x 3 DKS 2010		
4	Phillips screw	1	961 185 1 0444	E	
5	washer	1	1.6 x 3 x 0.3 DKS 2001 (Cu)		
6	washer	1	1.6 x 3 x 0.2 DKS 2001		
	or		1.6 x 3 x 0.1 DKS 2001		
7	locking ring	1	2.5 TGL 21 706		
8	drum assembly	1	961 185 9 0123		
9	tension spring	1	0.22 x 2 x 6 A 2 TGL 18 396		
10	locking member	1	961 185 1 0404		
11	shutter assembly	1	961 185 9 0058	E	
12	case assembly	1	961 185 9 1095		see fig 3.5.
13	flat head screw	1	CM 1.4 x 2.5 DKS 2010		
14	flash switch	1	961 185 9 0141	E	

Adjustment notes for fig 3.4.

Item	Description	Tools
- Q -	Lift adjustment with camera cocked: set measurement a = 0.5 mm on shutter (3.4/11) on bottom plate assembly (3.5/12); see figs 3.4.1. and 3.4.2. In released state set position Q_2 at U	

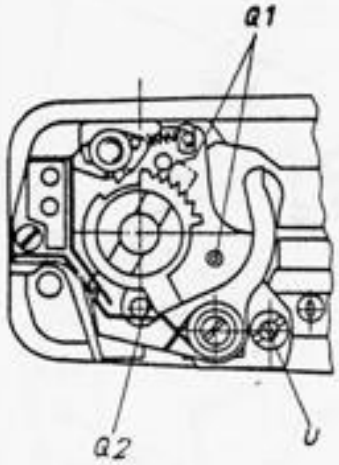


Bild 3.4.2

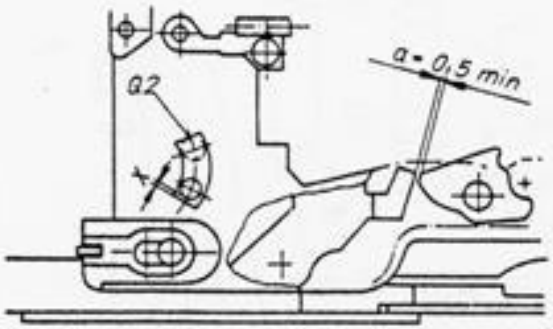


Bild 3.4.1

Adjustment notes for fig 3.4.

Item	Description	Tools
- V -	Blocking lever adjustment on bottom plate assembly (fig 3.5/12) with camera released. Bend measurement b = 0.7 ± 0.2 at V; see fig 3.4.3.	

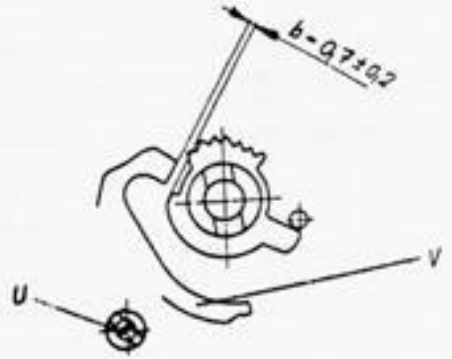


Bild 3.4.3

Adjustment of motor switch (3.5/9) on the basis of fig 3.4.4.; the contact distance between the two springs must be 0.3 ± 0.1 mm when the camera is cocked.

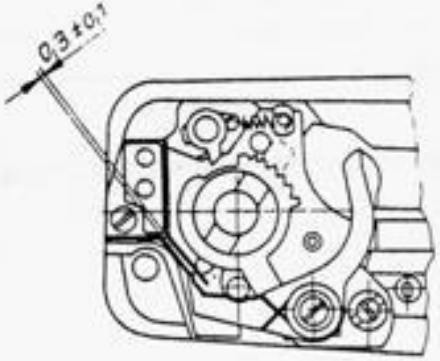


Bild 3.4.4

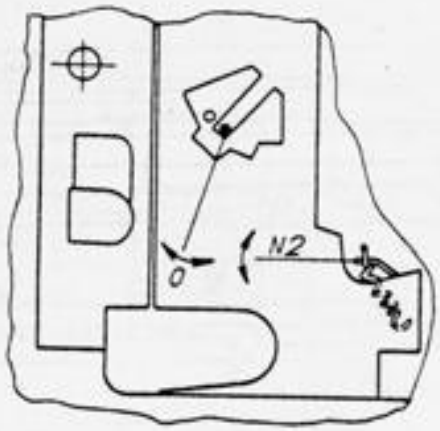


Bild 3.4.5

Assembly notes for fig 3.4.

Item	Description	Tools
N1/N2	Running time of E 1 and E 2 = 7.7 ± 0.3 E 1 = E 2 = ± 0.1 ms	961 185 9 0000 M 9 adjusting spanner E 1
	running time on measurement basis a = 20 mm b = 24 mm	961 185 9 0000 M 10 adjusting spanner E 2

Shutter speed adjustment

is carried out after the mirror box and exposure system have been assembled

a) running time check

- O - b) set fixed speed 1/1000 s (insert battery and adjust O (fig 3.4.5.)

c) adjust degree of unevenness of shutter speed with the running time of E 1;
adjust at N1 according to fig 3.4.6.

- N1 - Adjustment of running time E 1 when run down at spring suspension point N 1
see fig 3.4.6.

- N2 - Adjustment of running time E 2

when running down at spring suspension point N2;
see fig 3.4.5.

Adjustment of flash switch (fig 3.4.)

- Cock shutter, allow E 1 to run down; contact must be permanent

- Release shutter, contact must be interrupted; adjust contact spring if necessary

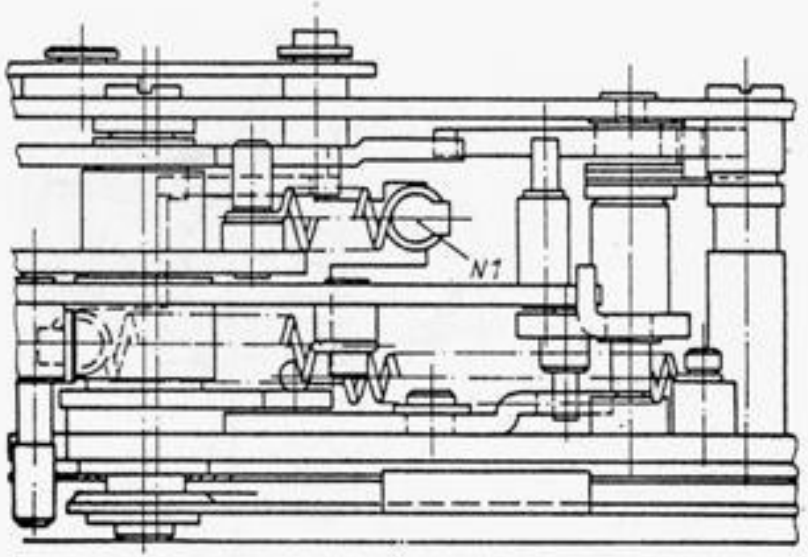
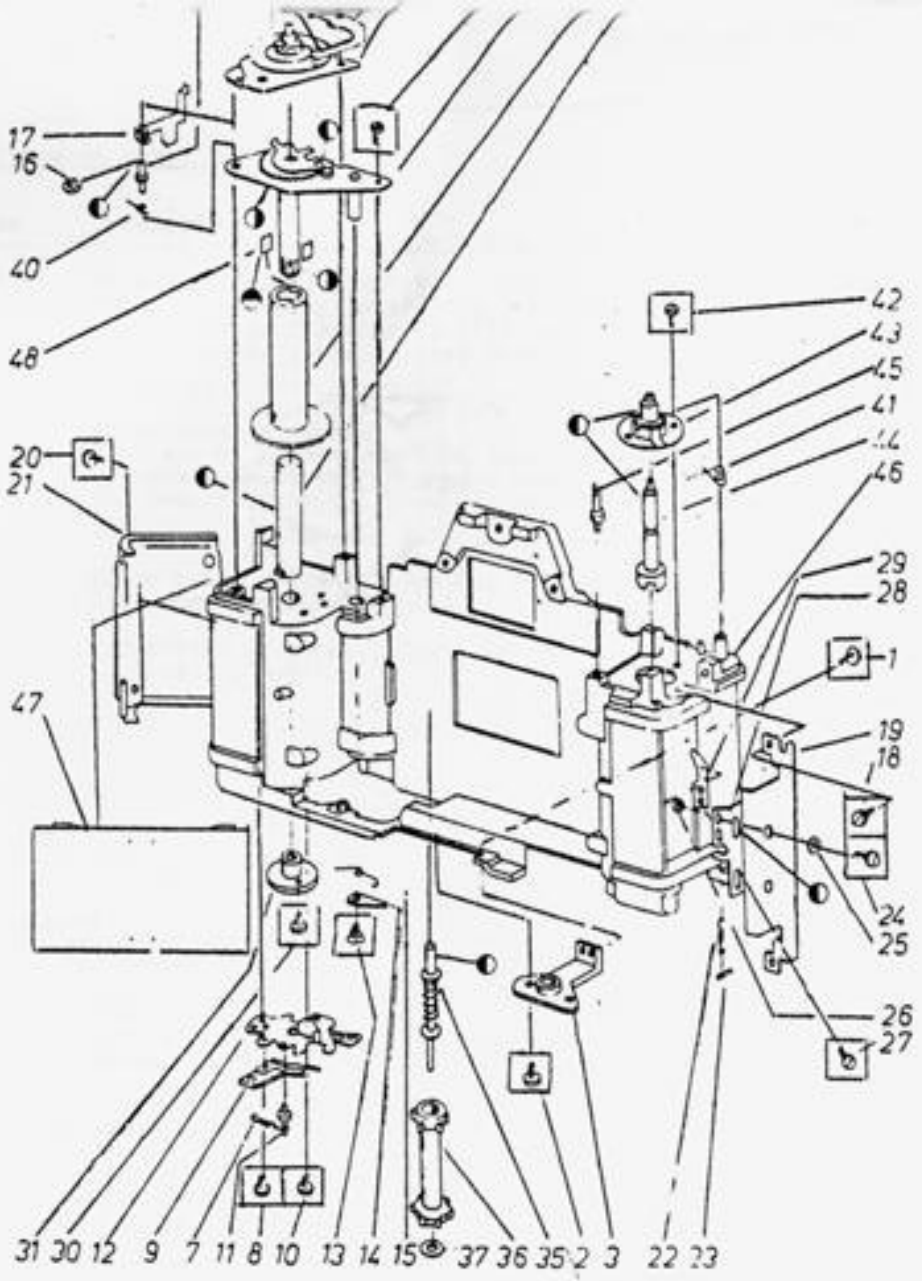


Bild 3.4.6



PRAKTICA BC 1 Bild 3.5.

Fig. 3.5. Disassembly - case assembly

Item	Definition	Pcs	Code	Availability	Remarks
1	flat head screw	2	BM 1.6 x 3 TGL 5683		
2	flat head screw	2	BM 1.6 x 5 TGL 5683		
3	tripod nut	1	961 185 9 0125	E	
4	oval head screw	4	BM 1.6 x 4 TGL 0-920		3 x 9 0100 1 x 9 0105
5	leaf spring	1	961 185 1 0088	E	
6	bottom plate assembly	1	961 185 9 0100	E	turn camera through 180°
7	tension spring	1	0.11 x 1.4 x 10 A 1 TGL 18 396		
8	oval head screw		BM 1.6 x 4 TGL 0-920		
9	contact carrier assembly	1	961 185 9 0104	E	
10	fillister-head screw	1	Bn 1.6 x 8 TGL 0-84		
11	shaft	1	961 185 1 0500		
12	bottom plate assembly	1	961 185 9 0105	E	
13	shoulder screw	1	961 185 1 0061		
14	lever	1	961 185 1 0062		
15	torsion spring	1	961 185 1 0063		
16	retaining disc	1	1.2 TGL 0-6799		
17	lever	1	961 185 1 0056		
18	cylinder screw	2	961 185 1 0164		
19	covering plate	1	961 185 1 0167	E	
20	flat head screw	2	AM 1.6 x 2 DKS 2010		
21	back assembly	1	961 185 9 0096	E	
22	tension spring	1	0.2 x 2.2 x 25 A 1 TGL 18 396		
23	straight pin	1	0.8h9 x 6 TGL 0-7		
24	screw	2	961 185 1 0161	E	

Adjustment notes for fig 3.5.

Item	Description	Tools
	Adjustment of rewind lock Assembly position of bottom plate assembly (3.5/34) in uncocked state. When cocking (lever 3.0/1 & /4) load film transport roller and hold cocking lever at stop.	
- W -	Push W in direction of arrow to stop and tighten screw. See fig 3.5.1.	
- X -	Adjustment of bottom plate assembly stop (fig 3.5/6) Cock camera till stop Q_1 and $_2$, see fig 3.4.2. Loosen screws push stop at X (fig 3.5.2.) in direction of arrow and tighten screws.	

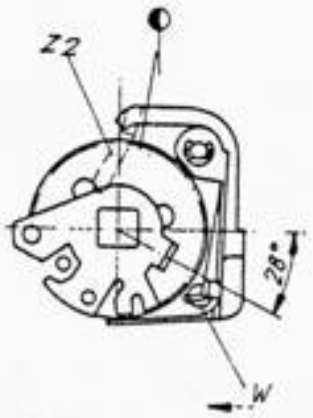


Bild 3.5.1

Item	Definition	Pcs	Code	Availability	Remarks
25	washer	2	961 185 1 0604		
26	ring	2	961 185 1 0460		
27	flat head screw	2	BM 1.4 x 2 DKS 2010		
28	locking bar	1	961 185 1 0162		
29	angled plate	1	961 185 1 0166		
30	flat head screw	2	BM 1.6 x 2 DKS 2010		
31	socket	1	961 185 1 0445		
32	oval head screw	5	BM 1.6 x 3 TGL 0-920		2 x 9 0019 3 x 1 0038
33	shaft	1	961 185 1 0055		
34	bottom plate assembly	1	961 185 9 0109	F	
35	shaft assembly	1	961 185 9 0108		
36	transport roller	1	961 185 1 0076	E	
37	washer	1	2.5 x 4 x 0.1 DKS 2001		
38	film spool, glued group	1	961 185 9 0145	E	
39	sleeve	1	961 185 1 0078		
40	torsion spring	1	961 185 1 0058		
41	torsion spring	1	961 185 1 0084		
42	oval head screw		BM 1.6 x 3 TGL 0-920		
43	rewind bushing	1	961 185 1 0038	E	
44	rewind shaft	1	961 185 1 0037	E	
45	pin	1	961 185 1 0218		
46	case, glued group	1	961 185 9 0206	E	
47	film pressure plate	1	961 185 9 0003	E	
48	leaf spring	2	961 185 1 0079	E	
49	strap eye	2	961 185 1 0826	E	not shown
50	back cover	1	961 185 9 1017	E	not shown

Adjustment notes for fig 3.5.

Item	Description	Tools
- Y -	Adjustment of cocking lever lock Swing out cocking lever (3.0/1 & /4) and adjust leaf spring (3.5/5) to a secure locked position free from play. Adjust at Y (see fig 3.5.2.)	
- Z -	Adjustment of counter When the back is opened the counter returns automatically to zero, when the back is closed it runs freely. Adjust at Z_1 (see fig 3.5.2.) After being wound 4 times the counter disc must indicate frame 2.	
	Adjustment of counter disc lift at Z_2 (see fig 3.5.1.)	96\ 185 9 0000 M 18

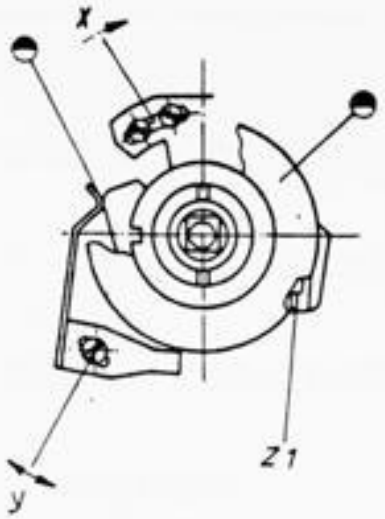


Bild 3.5.2

Assembly notes for fig 3.5.

Item	Description	Tools
29	push angle plate from outside through the slit into case,	
28	grease locking bar lightly.	grease 228
27	and secure with screw.	
26	Secure locking bar with ring.	
24/25	washer and screw. Locking bar must not jam.	
44	Back must spring open when rewind shaft is actuated and be kept free from play when locked (maximum distance between locking member on locking bar and hook on back min 0.5 mm - see fig 3.5.3.).	

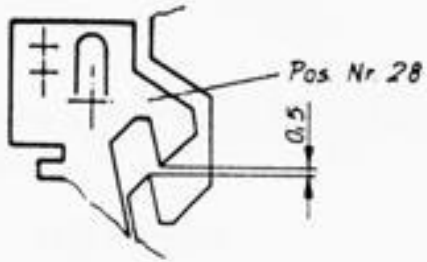


Bild 3.5.3

6	Square up bottom plate assembly with rivet positions as in fig 3.5.1.	
12	Interlock bottom plate (3.5/12) with bottom plate assembly.	
4	Insert oval head screw so that the drilled holes are aligned and the stop sits close. See fig 3.4.2. - Q_1	

Assembly notes for fig. 3.5

Item	Description	Tools
22	When changing camera back glue glued--on plate with camera number to the new back.	
46	Insert in case transport roller (item 36), shaft assembly (35) and film spool (38), (after every disassembly insert 2 new leaf springs 1 0079), assemble group (34) with all relevant parts assembled with conical aid.	961 185 9 0095 M 1 961 185 9 0095 M 4

Note:

All bearings of the catch on the shutter and of the self-timer should be treated when required with oil 124.

Supplement to assembly notes for Fig. 3.5

Items 1, 2, 3 are not needed for the assembly of the BC 1 case.

The tripod nut (item 3) is embedded in the case. If damaged, the whole case must be replaced.

4. Shutter speeds and tolerances

- Calibration of indication and shutter speeds
- List of circuit components
- Functional diagram
- Block diagram
- Circuit diagram

Calibration

Calibration with R 12 with L = 258.3 cd/m²
k = 5.66
x = 18 DIN/50 ASA
t_e = 31.3 ms ± 3.1 ms
Calibration constant C_R = 50 cd x c x m^{-2}

Tolerances: automatically controlled shutter speeds for open-aperture metering
Energy source, EMP U_o = 4.5 V ± 0.05 V
R_i = 0 Ω

ϑ = 23 °C ± 5 grd ϑ = $^{40}_{-10}$ °C r.F. = 83 %

	Δ EV	Δ EV
Acceptance tolerance with calibration lens		
Exposure factor	± 0.85	± 1.33
Indication error for control value	neighbouring LED may light up	
Indication error for real value	± 0.5 for t_e ≥ 1/125 s ± 1 for t_e ≤ 1/125 s	
Additional errors		
Hysteresis error at setting dial for compensation value and film speed	|0.33|	
Change in battery voltage between 6 V and 3.6 V	|0.66|	
Exposure error with standard lens	± 1.33	± 2

Shutter speeds and tolerances of the PRAKTICA BC 1

Automatic mode 18 DIN / 50 ASA

Shutter speeds and nominal values

L cd/m²	L asb	eV EP 500	K	t_e s	t_e ms	tolerances ms
41 30	13 000	14	4	1/1000	0.98	0.55 - 1.75
41 30	13 000	14	5.6	1/500	1.95	0.98 - 3.49
10 30	3 250	12	4	1/250	3.91	2.15 - 6.99
10 30	3 250	12	5.6	1/125	7.81	4.25 - 14.00
260	810	10	4	1/60	15.63	8.60 - 28.00
260	810	10	5.6	1/30	31.30	17.20 - 55.90
65	200	8	4	1/15	62.50	34.40 - 111.90
65	200	8	5.6	1/8	125	68.70 - 223.80
16	50	6	4	1/4	250	137.40 - 446.00
16	50	6	5.6	1/2	500	274.00 - 897.00
16	50	6	8	1	1000	549.00 - 1790
Factor test		18 DIN + 2				
260	810	10	5.6	1/8	125	68.70 - 224
		18 DIN - 2				
260	810	10	5.6	1/125	7.81	4.25 - 14.00
		30 DIN				
260	810	10	5.6	1/500	1.95	1.07 - 3.49
16	50	6	5.6	1/30	31.30	17.20 - 55.90
		flash speed				
260	810	10	-		14	12 - 16

Automatic mode 18 DIN and compensation factor 0 with standard lens

Switch position on EP-500 as for curtain running time metering, except

- function changeover switch 5 set to STILL
- ASA changeover switch 6 set to 50 ASA (18 DIN)
- K value changeover switch 7 set to K = 1.46

Indication (rated value)	Switch	Aperture of camera lens
1/1000	LV 15	4
1/500	LV 15	5.6
1/250	LV 12	2.8
1/125	LV 12	4
1/60	LV 12	5.6
1/30	LV 9	2.8
1/15	LV 9	4
1/8	LV 9	5.6
1/4	LV 6	2.8
1/2	LV 6	4
1	LV 6	5.6

Adjustment of the indication is performed analogously to the above values; the values should be measured at R 12, fig 3.4.1.

If fixed speed 1/1000 s is correct, speed formation in automatic mode is performed within the tolerances.

Note:

If adjustment is performed while the exposure system is switched on (at RV 6, fig 3.2.1.), care should be taken to provide insulation between camera earth contact and wiper to prevent measuring errors.

Values and tolerances for

Basic measurement: a = 24 running time: t_v = 9.6 ms ± 0.4 ms
a = 22 t_v = 8.1 ms ± 0.3 ms
a = 20 t_v = 7.2 ms ± 0.3 ms

Semi-automatic mode with fixed speeds

Nominal speed	t_B / ms
1/1000	0.69 - 1.30
1/500	1.38 - 2.76
1/250	2.76 - 5.83

Nominal speed	t_B / ms
1/125	5.53 - 11.1
1/60	12.7 - 19.2
1/30	25.4 - 38.5
1/15	50.8 - 76.9
1/8	102 - 154
1/4	203 - 308
1/2	406 - 616
1	812 - 1231

Flash speed 14 ms ± 1.5 ms

Degree of variation: (at shutter speeds for 1/1000 s)

Example: 0.70 - 1.05 ms
0.75 - 1.10 ms
0.80 - 1.20 ms
0.85 - 1.25 ms
0.90 - 1.35 ms

Fixed speed measurement with EP-500:

Switch position as for curtain running time measurement, apart from measuring point changeover button which is set to EXP. T. Battery can be used for all speeds except .

Note: There must be a clear difference between 1/1000 s and 1/500 s in agreement with table of tolerances. If necessary adjust speed at O (fig 3.4.5.).
If there is no difference, go back to beginning and change shutter.

Measuring instructions for the Praktica BC 1 on the multi-shutter tester

Model EP-500 A

Description based on
Instruction manual
for multi-shutter tester
Model EP-500 A
Kyoritsu Electric Co Ltd

1. Curtain running time without lens

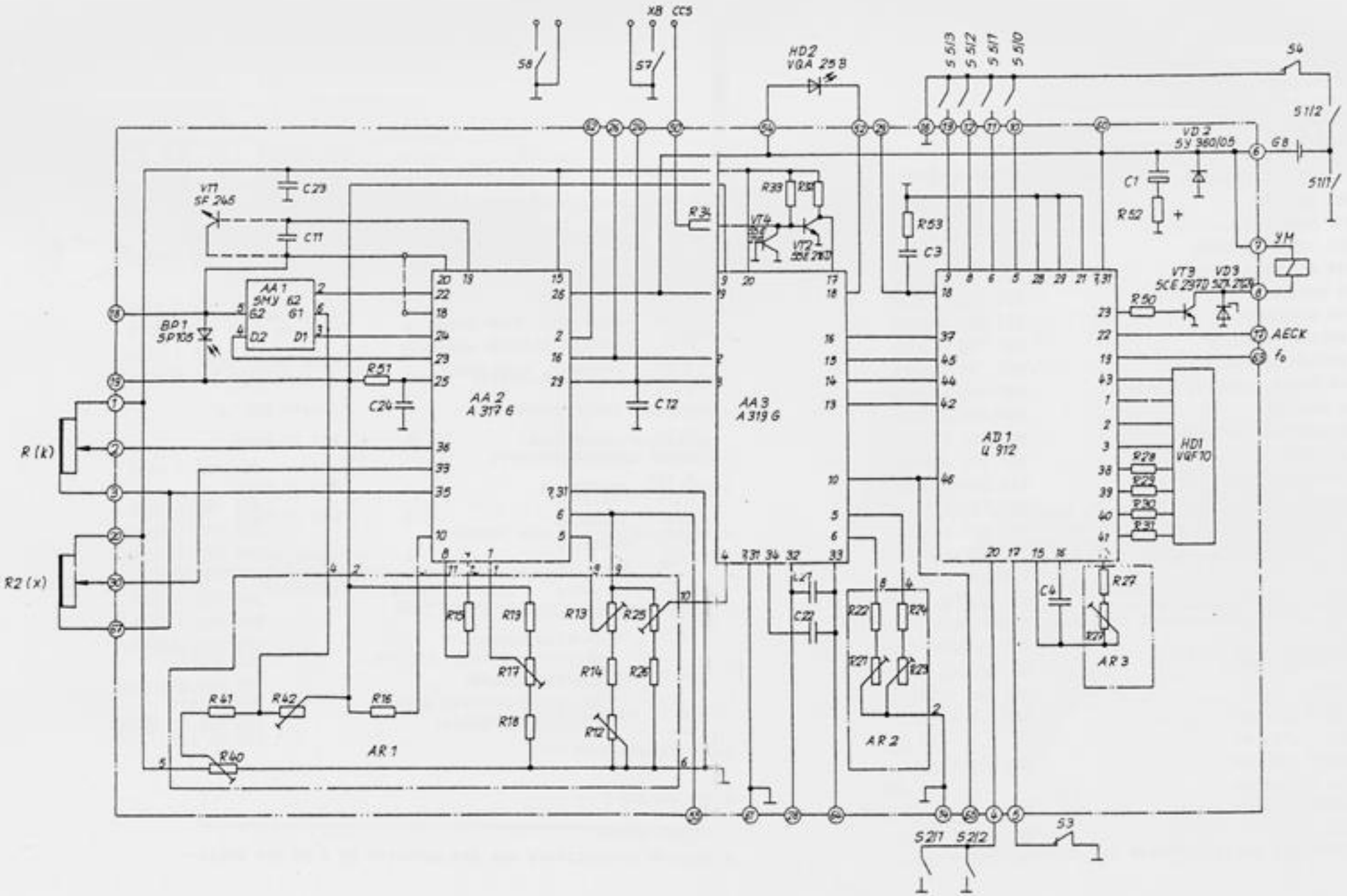
	Switch	Position
- on/off	1	Power to on
- measuring/calibration changeover	4	set to MEAS
- function changeover	5	set to SHUT
- shutter curtain movement direction changeover	8	set to VERT
- measuring point changeover	9	button RUN. T.
- exposure value changeover	2	LV SELECT to EV 12 (turn from left)
- table	15	move so that camera is in middle of disc
- indication		
channel A ... bottom B ... middle C ... top		insert measuring head so that arrow points upwards

Set camera to ϟ (no battery needed)

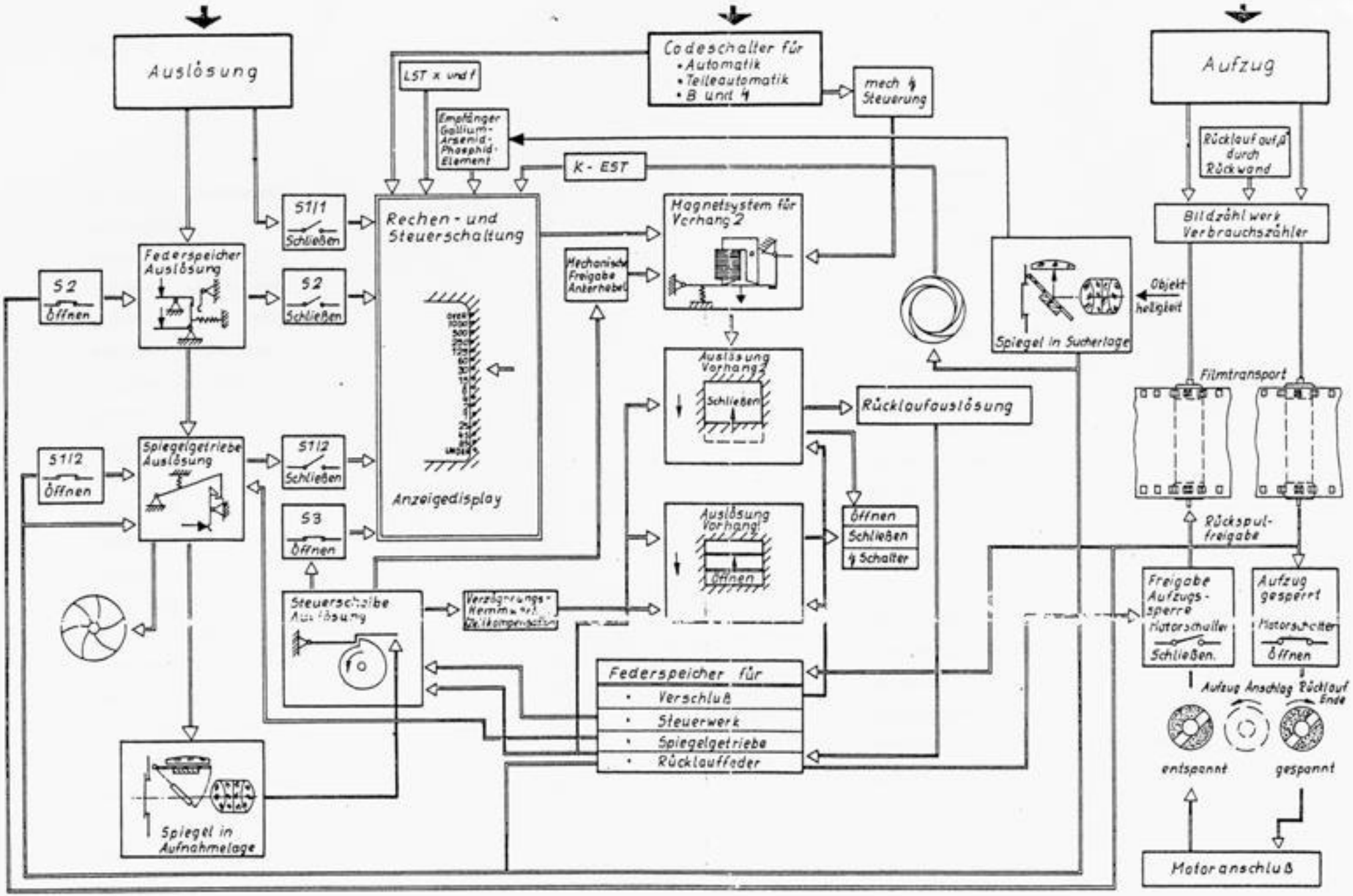
List of circuit components

Symbol	Designation	Code
A	printed circuit board assembly	961 185 9 1070
E 1	contact, injection moulded group	961 185 9 0242
E 2	bayonet ring assembly	961 185 9 0140
R	voltage divider	
S 1/1	shutter assembly	961 185 9 0058
S 1/2	contact, welded group	961 185 9 0050
S 2/1	contact soldered group	961 185 9 0128
S 2/2	switch assembly	961 185 9 1020
S 3	shutter assembly	961 185 9 0058
S 4	code switch assembly	961 185 9 0076
S 5	code switch assembly	961 185 9 0076
S 6	circuit board, riveted group	961 185 9 0039
S 7	switch assembly	961 185 9 0141
S 8	contact carrier assembly	961 185 9 0104
YM	core assembly	961 185 9 0153
XB 1	flash contact, riveted group	961 185 9 0022
XB 2	adapter assembly	961 185 9 1015
HD 2	diode	961 185 1 1064
LP	flexible printed circuit board	961 185 1 1070
AA 1	transistor	961 185 1 1052
AA 2	circuit	A 3170 TGL 38 977
AA 3	circuit	A 3157 TGL 38 978
AD 1	circuit	U 912 EMS 2603
BP 1	silicon sensor cell	SP 105 TGL 38 567
VT 1	transistor	961 185 1 1072
VT 2	transistor	SSE 2 6 D TGL 38 465
VT 3	transistor	SCE 217 D TGL 38 462
VT 4	transistor	SSE 216 TGL 38 465
VD 2	diode	961 185 1 1063
VD 3	diode	961 185 1 1071

Symbol	Designation	Code
HD 1	LED row	VQF 10-1 TGL 38 470 Z 1
C 1	capacitor	961 185 1 1050
C 3	capacitor	961 185 1 1055
C 4	capacitor assembly	961 185 9 1049
C 11	capacitor	961 185 1 1056
C 12/ C 22	capacitor	961 185 1 1057
C 23		
C 21	capacitor	961 185 1 1058
C 24	capacitor, bent group	961 185 6 1069
R 2	voltage divider assembly	961 185 9 1080
R 28	resistor, bent group	961 185 6 1060
R 29		
R 30		
R 31		
R 32	resistor	961 185 1 1065
R 33/ R 34	resistor	961 185 1 1066
R 50	resistor	961 185 1 1061
R 51	resistor	961 185 1 1068
R 52	resistor	961 185 1 1059
R 53	resistor	961 185 1 1065
R 54	resistor	961 185 1 1048
AR 1	thick-film circuit	DFS 483.930/5031 TGL 32 414
AR 2	thick-film circuit	DFS 483.810/5032 TGL 32 414
AR 3	thick-film circuit	DFS 483.85 /5033 TGL 32 414


S8
S7
XB
CC5
HD2
VGA 25 B
S 5/3
S 5/2
S 5/1
S 5/0
S4
S1/2
S1/1
VD2
SY 360/05
G8
C1
R52
+
C29
VT1
SF 245
C11
AA1
SMY 62
G2
G1
D2
D1
BP1
SP105
R33
R35
VT4
VT7
R34
R53
C3
R51
C24
AA2
A 317 G
C12
AA3
A 319 G
AD1
U 912
HD1
VGF10
VT3
VD3
R50
УН
AECK
f0
R (k)
R2 (x)
R15
R19
R17
R18
R13
R25
R14
R26
R12
R41
R42
R16
R40
AR1
R22
R24
R21
R23
AR2
C4
R27
AR3
S2/1
S2/2
S3

Funktionelles Blockschaltbild PRAKTICA BC 1



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